ISAL 2025 SCHEDULE

VERSION: 8th of August, 2025 – To be updated

Monday, 22 September 2025

18:00 - 22:00	**Get Together – Opening** Food, Drinks and Networking Spectrum
19:00 - 19:10	**Opening Talk - ISAL 2025** Prof. Dr.-Ing. habil. Tran Quoc Khanh - Head of the Laboratory of Adaptive Lighting Systems and Visual Processing, TU Darmstadt
19:10 - 19:30	**30 Years of ISAL** Dr.-ing. Wolfgang Huhn - President of GTB & Dr. phil. nat. Rainer Neumann, GTB

Tuesday, 23 September 2025

08:00 - 08:15 **Opening Speech: Dean of Electrical Engineering TU Darmstadt**
Spectrum

08:15 - 08:45 **Keynote Speech: "Next-Level Lighting: Vision Systems, Software, and Beyond" (Title TBD)**
Frank Huber (President Automotive Lighting & Sensing - Marelli), Spectrum

08:45 - 10:00 **Future Lighting and Intelligent Lighting Systems**
led by Philipp Röckl, STELLANTIS
Spectrum

08:45 - 08:55 **All Photons are Not Created Equal: Optimizing Intelligent Headlights under Adaptive Streetlighting Systems** John Bullough[1] [1]Icahn School of Medicine at Mount Sinai

08:55 - 09:05 **Digital Solutions and new Functionalities - Innovations in Front Lighting** Gerald Boehm[1] [1]ZKW

09:05 - 09:15 **Comparison of Different Adaptive Light Distributions for Automated Driving** Nathalie Müller[1] [1]TU Dortmund University

09:15 - 09:25 **Impact of Vehicle Headlight Distribution and Street Lighting on Camera Signal Quality in Nighttime Autonomous Driving: A Field Study**
David Hoffmann[1] [1]TU Darmstadt - FG ALSVV

09:25 - 09:35 **Zone-Based Matrix Headlight Feedback Control** Mirko Waldner[1] [1]TU Dortmund University

09:35 - 09:50 **Discussion** TU Darmstadt Automotive Lighting Group[1] [1]FG ALSVV

10:00 – 10:45 **Coffee & Exhibition**
Exhibition Area

10:45 - 12:15 **Glare (Parallel Session)**
led by Dr. phil. nat. Rainer Neumann, GTB, GER
Spectrum

10:45 - 10:55 **Report of Symposium on Glare in Road Traffic** Burkhard Böttcher[1]
[1]ADAC e.V.

10:55 - 11:05 **Glare Contributors - A Metastudy on Scientific Research about Different Aspects of Glare** Michael Hamm[1]

[1]TU Darmstadt - Laboratory of Adaptive Lighting Systems and Visual Processing

11:05 - 11:15 **Headlamp Misalignment: Causes and Effects on Glare** Christian Hinterwälder[1] [1]AUDI AG

11:15 - 11:25 **New Statistics and Measurement Evaluations for Headlamp Glare Reduction** E.-O. Rosenhahn[1] [1]Presenter

11:25 - 11:35 **Glare Causes in Nighttime Traffic - How can we minimize the risk of glaring headlights to increase traffic safety?** Anil Erkan[1] [1]AUDI AG

11:35 - 11:45 **Discomfort Glare from LED Lighting: Impact of the Size of the Glare Light Source and the Background Luminance** Elisabeth Kemmler[1] [1]TU Darmstadt ALSVV

11:45 - 12:15 **Discussion** TU Darmstadt Automotive Lighting Group[1] [1]FG ALSVV

10:45 - 12:00 **Sustainable Lighting (Parallel Session)**
led by P.-H. Matha, DVN, FRA
Ferrum

10:45 - 10:55 **1st approach to reduce carbon footprint of lighting parts**
Francois BEDU[1] [1]author

10:55 - 11:05 **Influencing Factors and Methods for a Circular Economy in Automotive Lighting: The Nalyses Research Project** Christian Schmidt[1]
[1]Forvia Hella

11:05 - 11:15 **Identification of Key Factors for Reducing the Carbon Footprint of Ambient Lighting Systems**
Bjarne Grunenberg[1] [1]Mercedes-Benz

11:15 - 11:25 **Improvements of repairability and the quantified reduction of climate impact based on fleet model**
Michael Muttenthaler[1] [1]ZKW Group GmbH

11:25 - 11:35 **Regulatory-compliant energy-saving potential for the passing beam of matrix LED headlamps** Niklas Fittkau[1] [1]Chair of Control Engineering and

Mechatronics, Heinz Nixdorf Institute, Paderborn University

11:35 - 12:00 **Discussion** TU Darmstadt Automotive Lighting Group[1] [1]FG ALSVV

12:15 - 13:30 **Lunch**
Lunch Areas

13:30 - 15:00 **Car2X Communication (Parallel Session)**
led by Dr. M. Maier, Mercedes Benz AG, GER
Spectrum

13:30 - 13:45 **Advanced Light Signature as Communication device** Julisa Le[1] [1]Stellantis

13:45 - 14:00 **Pedestrian preferences for autonomous vehicle communication via light-based eHMIs** Alina Waldmann[1] [1]L-LAB

14:00 - 14:15 **Effect of external HMIs on pedestrian safety and traffic flow - A motion capture study** Felix Maier[1] [1]Marelli Germany GmbH

14:15 - 14:30 **The Display Formular**
David Duhme[1] [1]HELLA Innovation Lighting

14:30 - 14:45 **Intuitive Communication Between Automated Vehicles and Vulnerable Road Users: An Experimental Study Using Virtual Reality** Ru Li[1, 2] [1]Vrije Universiteit Brussels, ETEC Department & MOBI Research Center, Pleinlaan 2, 1050 Brussels, Belgium, [2]Flanders' Make, Heverlee, Belgium

14:45 - 15:00 **Discussion** TU Darmstadt Automotive Lighting Group[1] [1]FG ALSVV

13:30 - 15:00 **Headlamp Design (Parallel Session)**
led by Dr. M. Kleinkes, Forvia HELLA, GER
Ferrum

13:30 - 13:45 **How to win all trophies worldwide: Digital Lighting on a single lamp hardware** Marko Heidrich[1] [1]Marelli Germany GmbH

13:45 - 14:00 **Direct imaging headlighting solutions - from basic adaptive high beam segmentation to advanced masking, symbol projection, lane marking and low beam**

enhancement- a comparison Josef Schug[1]
[1]NICHIA Automotive Innovation Center GmbH

14:00 - 14:15 **Development of a Dual-Injection Silicone-Based Seamless Automotive Lamp for Euro NCAP Safety**
Eun Bi Kwon[1] [1]Hyundai

14:15 - 14:30 **Vertical Designs for Main Beam Solutions: Challenges of Legal Requirements and Consumer Ratings**
Verena Pramhaas[1] [1]ZKW

14:30 - 14:45 **Smart Headlights with Coaxial Integration of LiDAR and Radar Sensing** Dmitrii Stefanidi[1] [1]Fraunhofer Institute for Applied Optics and Precision Engineering IOF

14:45 - 15:00 **Discussion** TU Darmstadt Automotive Lighting Group[1] [1]FG ALSVV

15:00 - 15:30 **Coffee & Exhibition**
Exhibition Area

15:30 - 16:40 **Car2X Communication and Projections Systems (Parallel Session)**

led by Dr. E.-O. Rosenhahn, Marelli Automotive Lighting Reutlingen GmbH, GER

Spectrum

15:30 - 15:40 **ADS Marker Lamps - Results of Field Testing and Customer Studies** Daniel Betz[1] [1]Mercedes-Benz

15:40 - 15:50 **Light-based communication with other road users - An overview** Maximilian Baumann[1]

[1]Karlsruhe Institute of Technology

15:50 - 16:00 **The evolution of surface light guides in automotive signal-lighting**

Bernhard Kreipe[1], Christian Studeny[1]

[1]Volkswagen AG

16:00 - 16:10 **Dynamic Ground Projection: Trends, Performance, Dimensions, Safety Aspects** Felix Freytag[1]

[1]Marelli Germany GmbH

16:10 - 16:20 **An Efficient Projector Concept to Meet the Challenge of Signal Road Projection at Daytime** Thorsten Hornung[1] [1]odelo GmbH

16:20 - 16:40 **Discussion** TU Darmstadt Automotive Lighting Group[1] [1]FG ALSVV

15:30 - 16:40 **Visual Performance (Parallel Session)**
led by M. Komatsu, Koito Manufacturing Co. Ltd, JPN
Ferrum

15:30 - 15:42 **A computational feedback model for generalized homogeneity evaluations of luminance distributions**
Katrin Schier[1] [1]L-LAB

15:42 - 15:54 **Psychophysical testing of safety aspects for daytime running lamps**
Yan Liang[1] [1]Vrije Universiteit Brussels, ETEC Department & MOBI Research Center, Belgium

15:54 - 16:05 **Evaluation of the necessary intensity of daytime running lights at different ambient illuminance levels** Markus Alexander Peier[1] [1]TU Darmstadt, Fachgebiet Adaptive Lichttechnische Systeme und Visuelle Verarbeitung

16:05 - 16:17 **Assessing the Correlation Between Headlight Safety Performance Rating (HSPR) and the Visibility Level with varying luminance coefficients**
Nikolai Kreß[1] [1]TU Darmstadt

16:17 - 16:29 **Comparative Evaluation of Visual Performance, Glare, and Scoring Metrics in HSPR and VLPS** Korbinian Kunst[1] [1]TU Darmstadt

16:29 - 16:40 **Discussion** TU Darmstadt Automotive Lighting Group[1] [1]FG ALSVV

16:40 - 17:00 **Coffee & Exhibition**
Exhibition Area

17:00 - 18:15 **Emerging Trends in Light Sources and Optical Innovations**
led by D. Vanderhaeghen, Lumileds, GER
Spectrum

17:00 - 17:10 **Impuls Speech: Digital Light - A Journey of an Automotive Vision**
Stefan Groetsch[1] [1]ams OSRAM Group

17:10 - 17:20 **Investigation of new Bi-LED front lighting concept module for A - B segment and LCV vehicles and its Integration in Stellantis' Architecture**
Nadia Costa[1] [1]Stellantis Europe S.p.A.

17:20 - 17:30 **Integrated area-light sources in RCL pave the way for new automotive signal lighting applications** Erwin Lang[1] [1]ams-OSRAM Internation GmbH

17:30 - 17:40 **Ethernet-based Software-Less Headlamp Architecture for Next-Generation Automotive Lighting** Jiyoung Jeong[1] [1]LG Electronics

17:40 - 17:50 **High efficiency ADB head lamp module using micro lens arrays** Michael Scheuerer[1] [1].

17:50 - 18:00 **Athermalization of glass and plastic hybrid lens with large aperture** Cheng JIANG[1] [1]Fudan University

18:00 - 18:15 **Discussion** TU Darmstadt Automotive Lighting Group[1] [1]FG ALSVV

18:15 - 20:00 **Poster Session & Beer**
Poster & Beer Area

New Methodology for homogeneity evaluation from qualitative to quantitative perspective Valere CALAIS[1] [1]Author

FlatLight-Technology - Individual Stylings & Differentiations Martin Mügge[1], Marco Reichle[2] [1]Forvia Hella, [2]Reichle Technologiezentrum GmbH

Enhancing Resolution in Micro-LED Pixel Headlamp Projectors via Mechanical Wobulation: A Feasibility Study ChangHi Lee[1, 2] [1]Seoul National University, [2]Hyundai Mobis

Visibility of Interior Projections: Effects of Surface Characteristics Alexander Stuckert[1] [1]BMW Group

Sustainability evaluation of repair and remanufacture solutions for automotive headlamps Christian Spork[1] [1]L-LAB

Integration of AI and ML in the pre-development stage of exterior module lamps Swapna Gane[1] [1]Mercedes-Benz India

3D Virtual Reality Testing-Tool for GFHB-Algorithm Anton Kneib[1, 2] [1]Stellantis, [2]Opel Automobile GmbH

Service-oriented architectures enabling future vehicle lighting Florian Muttenthaler[1], Matthäus Artmann[1] [1]ZKW Lichtsysteme GmbH

High-frequency pixel light systems for faster pseudo image generation and object detection with event cameras
Leonard Haensel[1] [1]L-LAB

Smart pixel configurations for most efficient full headighting matrix beam applications Thorsten Anger[1] [1]Lumileds

Headlamp Performance Ratings: A Comparative Analysis of HSPR and VLPS
Korbinian Kunst[1] [1]TU Darmstadt

Integration Study of Vehicle Posture Sensors for Dynamic Control of HD Lighting Hyun-Chang Hwang[1] [1]Advanced Lamp Engineering Team

Energy-Efficient Pedestrian Marker Light Based on Pose Probability for Computer Vision Felix Glatzel[1] [1]TU Dortmund University

AI-Based Condensation Monitoring for Headlight Simulation Validation Simon-Hauke Wichmann[1] [1]PhD Candidate

Scalable Intelligent Lighting Software Platform Applicable Across Various Hardware Configurations Jiyoung Jeong[1]
[1]LG Electronics

Detectability of Nonuniformities in Automotive Exterior Displays: A Model Validation Study Lars Wagner[1] [1]L-LAB

Zonal Electronic Architecture for Future Lighting Wolfgang Ritter[1] [1]Marelli

APPLICATION OF KOHLER ILLUMINATION IN REAR LAMP FOG DESIGN Marco Svettini[1] [1]Marelli

Speed-based Forward lighting for Two-Wheelers: Enhancing Nighttime Visibility and Safety Shanmukha Pradeep K[1] [1]TVS MOTOR COMPANY

EyeTracking in XR-Headsets and its Potential to Access Glare Virtually Benedikt Lamontain[1] [1]co-author

Electrochromic Technology as a Design and Functional Element in Automotive Lighting Samuel Tomko[1] [1]Project Innovation

20:00 - 22:00 **Dinner & Drinks**
Spectrum

Wednesday, 24 September 2025

07:30 - 08:10 **Coffee & Exhibition**
Exhibition Area

08:00 - 08:20 **Key Note Speech: Perception in Motion: Integrating ADAS and Lighting in the Software-Defined Vehicle (Title TBD)**
Dr. Ingo Hoffmann - Head of Video Perception T3-AD, CARIAD
Spectrum

08:20 - 08:40 **KeyNote Speech: China's Progressive Approach to Automotive Lighting Regulation (Title TBD)**
*Mr. He Yuntang - **Professor level senior Engineer** , China Automotive Technology & Research Center Co., Ltd. (CATARC),*
Spectrum

08:45 - 10:15 **Car2X Communication II (Parallel Session)**
led by Dr. A. Freiding, Hyundai Motor Europe Technical Center, GER
Ferrum

08:45 - 09:00 **On-vehicle displays and on-ground projection for automated vehicle communication - test track study results** Onoriu Puscasu[1] [1]Valeo Light

09:00 - 09:15 **Effect of Luminous Intensity Modulation Patterns on Perception of Automated Driving System Marker Lamp at Night** Akihiro Abe[1]
[1]National Traffic Safety and Environment Laboratory

09:15 - 09:30 **Challenges of HD-Pixelated Projection Modules in Headlamps with Increasing Demands on Resolution**
Andreas Bieler[1] [1]ZKW

09:30 - 09:45 **Polarization Multiplexed Metaoptic Symbol Projection for eHMI**
Lukas Hiller[1] [1]HELLA GmbH & Co. KGaA

09:45 - 10:00 **Micro-segmented LED die technology for dynamic surround car illumination** Benno Spinger[1] [1]Lumileds

10:00 - 10:15 **Discussion** TU Darmstadt Automotive Lighting Group[1] [1]FG ALSVV

08:45 - 10:15 **Glare and Visual Performance (Parallel Session)**
led by Dr. Christian Amsel, ZKW, AT
Spectrum

08:45 - 09:00 **Field study on discomfort glare from headlamps with small light-emitting areas** Aniella Johannsen[1] [1]L-LAB

09:00 - 09:15 **Optimization of ADB systems for perceptibility when using high resolution light source modules** Sinan Yargeldi[1] [1]Mercedes-Benz AG

09:15 - 09:30 **PWM Frequencies - Feasibility to avoid their negative effects** Ignacio CADENAS[1] [1]RENAULT GROUP

09:30 - 09:45 **Effect of Rear Lamp Shape and PWM Frequency on the Visibility of the Phantom Array Effect** Hyeran Kang[1] [1]Yeungnam University

09:45 - 10:00 **A functional neuroimaging study of nighttime pedestrian visibility in automobile drivers.** Sanae Oyama[1] [1]KOITO MANUFACTURING CO.,LTD.

10:00 - 10:15 **Discussion** TU Darmstadt Automotive Lighting Group[1] [1]FG ALSVV

10:15 - 10:45 **Coffee & Exhibition**
Exhibition Area

10:45 - 12:00 **Car Interior and Ambient Lighting & Optical Materials (Parallel session)**
led by K. Matauschek, Valeo, FRA
Ferrum

10:45 - 10:58 **Biophilia meets Immersive Interior Lighting - How light art transforms cars into emotional spaces** Lena Nguyen[1] [1]feno GmbH

10:58 - 11:10 **Designing a Light-Based Extension of the Vehicle Environment for Motion Sickness Mitigation** Leonhard Rottmann[1] [1]L-LAB

11:10 - 11:23 **High-resolution reflection measurements made easy, using the example of vehicle displays** Alexander Voelz[1] [1]TechnoTeam Bildverarbeitung GmbH

11:23 - 11:35 **Temperature Behavior of different Lightfunctions: An Analysis between Battery Electric Vehicles and Inter-nal Combustion Engine Vehicles** Tabea Schlürscheid[1] [1]BMW Group

11:35 - 11:48 **Meeting Premium Automotive Lighting Requirements with Circular Polymers: Recycling Challenges and Material Solutions in the NALYSES**

Project Jan Helmig[1] [1]Covestro Deutschland AG

11:48 - 12:00 **Discussion** TU Darmstadt Automotive Lighting Group[1] [1]FG ALSVV

10:45 - 12:00 **Software Defined Vehicle & Adaptive Lighting (Parallel Session)**
led by R. Krautscheid, Federal Ministry for Digital and Transport, GER
Spectrum

10:45 - 10:58 **Building blocks for the Software-Defined Vehicle** Bernhard Kreipe[1] [1]Volkswagen

10:58 - 11:10 **Ethernet-based Software-Less Headlamp Architecture for Next-Generation Automotive Lighting** Jiyoung Jeong[1] [1]LG Electronics

11:10 - 11:23 **Lighting Software Architecture in a Software Define Vehicle** Frederic Nigon[1], Baptiste Huvet[1] [1]None

11:23 - 11:35 **Just in Light: An Energy-Efficient Approach to Automotive Lighting** Antoine De Lamberterie[1], Hafid El Idrissi[2] [1]R&I Optical Senior Expert, [2]R&I System and Architecture Manager

11:35 - 11:48 **EDAG EDlight + Homogenium - AI-based light function detection & measurement evaluation**
Jannes Alexander Buthmann[1] [1]Autor

11:48 - 12:00 **Discussion** TU Darmstadt Automotive Lighting Group[1] [1]FG ALSVV

12:00 - 13:30 **Lunch & Exhibition**
Lunch Areas

13:30 - 14:45 **Main Session: Lighting for ADAS and ADAS for Lighting**
led by Dr. J. Bullough, Icahn School of Medicine, USA
Spectrum

13:30 - 13:40 **Automatic Dynamic Headlamp Leveling utilizing Camera-based Vehicle Pitch Detection** Lars Lottner[1] [1]Ford

13:40 - 13:50 **Contrast Optimization for Camera-Based ADAS to Enhance Object Visibility Using Pixel Light Technology**
Julian Lerch[1], Markus Hofmann[2] [1]TU Darmstadt, [2]amsOSRAM

13:50 - 14:00 **Potential Energy Savings of Adaptive Driving Beam Headlamps using ADAS Sensors by Environmental**

Aware Lighting Control Heo Yunji[1]
[1]Hyundai Mobis

14:00 - 14:10 **From Hardware to Software: AI-Powered Virtual Sensors for Cost-Effective UNR48-09 Compliant Automatic Headlight Leveling** Martin Zeller[1], Stefan Hassels[1] [1]COMPREDICT GmbH

14:10 - 14:20 **Diversity of headlamp auto-leveling SW functions according to IMU sensor performance** Sanghwan Seo[1]
[1]Hyundai Mobis

14:20 - 14:45 **Discussion** TU Darmstadt Automotive Lighting Group[1] [1]FG ALSVV

14:45 - 15:15 **Main Lecture GTB: Status, Next Steps, and Future Perspectives: Bridging Technology and Regulation**

Dr. Wolfgang Huhn, President of GTB
Spectrum

15:15 - 15:45 **Discussion: Steering Board Insights: Innovation and Global Perspectives in Vehicle Lighting**

Members of the Scientific Steering Board
Spectrum

15:45 - 16:15	**Award Ceremony and Closing Speech** Best Paper Award, Best Speaker Award, Best Social Media Appearance Spectrum